

Unit 2... Linear Equations and Inequalities in One Variable (Keystone Review)**Part 2.1 – Solving 1-Step Equations**

_____ 1) Solve: $g + 7 = 28$

A) -21

B) -4

C) 4

D) 21

_____ 2) Solve: $\frac{2}{3}x = 18$

A) 6

B) 12

C) 27

D) 36

_____ 3) During the first half of a basketball game, a team scored 38 points. They made only field goals, which are 2 points each. Which of the following equations could you use to find the number of field goals g the team scored?

A) $2 + g = 38$

B) $2 - g = 38$

C) $\frac{g}{2} = 38$

D) $2g = 38$

_____ 4) Jessica has \$50.00 she wants to spend on CDs, which are on sale for \$13.50 each. Which equation could you use to find out how many CDs she can afford to buy?

A) $c - 13.5 = 50$

B) $c + 13.5 = 50$

C) $50c = 13.5$

D) $13.5c = 50$

_____ 5) A meteorologist forecast that the high temperature would reach 34°F one afternoon. The low temperature for the day was -4°F . Which equation could you use to find out how many degrees d the temperature would need to rise to reach the predicted temperature for the day?

A) $34 - 4 = d$

B) $-4 + d = 34$

C) $34 - d = 4$

D) $d - (-4) = 34$

_____ 6) Which of the following is an expression that represents “6 times the difference of a number n and 2”?

A) $6n - 2$

B) $6(n - 2)$

C) $6(n + 2)$

D) $6 \cdot 2 - n$

Part 2.2 – Solving Multi-Step Equations

_____ 7) Using the formula, $C = \frac{5}{9}(F - 32)$, solve for C if $F = 57^{\circ}$.

A) 12.7

B) 45

C) 13.8

D) 25

_____ 8) Solve: $8n + 5 - 2n = 41$

A) $3\frac{1}{2}$

B) $4\frac{1}{2}$

C) 6

D) $7\frac{2}{3}$

_____ 9) If a number is increased by 3 and that number is doubled, the result is -8. What was the original number?

A) -7

B) -5.5

C) 1

D) 6

_____ 10) The gas tank in Roy's car holds 12 gal of gasoline. The car averages 29mi/gal. Roy filled up the tank and then drove 140 mi. About how many gallons of gasoline are left in the tank?

A) 6 gal

B) 7 gal

C) 8 gal

D) 9 gal

_____ 11) Josie's goal is to run 40 miles each week. This week she has already run distances of 5.3 miles, 6.5 miles, and 6.2 miles. If she wants to spread out the remaining miles evenly over the next 4 days, which equation can you use to find how many miles (m) per day she must run?

A) $5.3 + 6.5 + 6.2 + 40 = m$

B) $40 - 5.2 - 6.5 - 6.2 = m$

C) $5.3 + 6.5 + 6.2 + 4m = 40$

D) $5.3 + 6.5 + 6.2 + m = \frac{40}{4}$

_____ 12) A cell phone company charges \$.35 for the first minute but only \$.10 every minute after that. Which equation can you use to find how many minutes m Eric talked if the bill for the call was \$5.45?

A) $0.35 + 0.10(m - 1) = 5.45$

B) $0.35 + 0.10m = 5.45$

C) $0.10 + 0.35(m - 1) = 5.45$

D) $0.10 + 0.35m = 5.45$

_____ 13) Albert Einstein made \$1.70 per hour and received a \$10 bonus at the end of the week. If Mr. Einstein made a total of \$70 last week, which equation best represents the situation?

A) $1.7 + 10h = 70$

B) $1.7 - 10h = 70$

C) $1.7h + 10 = 70$

D) $1.7h = 70 + 10$

_____ 14) Solve: $9x - 4(3x - 2) = 4$

A) $\frac{4}{3}$

B) $-\frac{4}{3}$

C) -4

D) 4

_____ 15) Solve: $18 - 4r = 6$

A) -6

B) 3

C) 48

D) -96

_____ 16) Solve: $\frac{b}{5} - 7 = 18$

A) -87

B) 83

C) 97

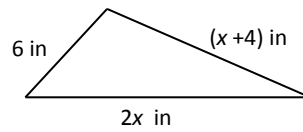
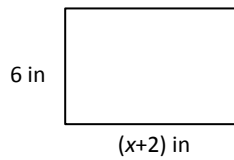
D) 125

- _____ 17) The length of a rectangular garden is 4 feet more than the width. The amount of fencing needed to enclose the garden is 36 ft. What is the length of the garden?
- A) 7 ft B) 11 ft C) 17 ft D) 32 ft

Part 2.3 – Equations with Variables on Both Sides

- _____ 18) Solve: $14 - 2(q + 5) = -2q + 9$
- A) No Solution B) All Real Numbers C) 0 D) 9
- _____ 19) Solve: $2y = 3y - 20$
- A) -20 B) -4 C) 4 D) 20
- _____ 20) Which of the following equations is NOT equivalent to the others?
- A) $-2(y - 3) = -6y$ B) $-2y - 6 = -6y$
- C) $y = -\frac{3}{2}$ D) $4y = -6$
- _____ 21) Ace Truck Rental charges \$54.00 a day plus 9 cents per mile. Joe's Truck Rental charges \$38.00 a day plus 13 cents per mile. For how many miles will the cost of renting a truck for one day at Ace equal the cost at Joe's?
- A) 40 mi B) 170 mi C) 400 mi D) 418 mi
- _____ 22) Which equation is NOT equivalent to $3p - 2 = 6p + 4$?
- A) $3p = 6p + 6$ B) $-6 = 3p$ C) $3p = 6$ D) $-3p - 2 = 4$
- _____ 23) A record store sells CDs for \$12.00 each. A music club offers 5 free CDs and charges \$15.00 for each additional CD. Which equation can you use to find the number of CDs, x , that would cost the same under both plans?
- A) $15x - 5 = 12x$ B) $12x - 5 = 15x$ C) $12x = 15(x - 5)$ D) $12(x - 5) = 15x$
- _____ 24) Solve: $2(y - 3) = 1.2y$
- A) -1.6 B) 1.4 C) 1.6 D) None of these
- _____ 25) Solve: $8 + 4d = -4(-2 - d)$
- A) 0 B) 1 C) All Real Numbers D) No Solution

_____ 26) The perimeters of the rectangle and the triangle below are equal. Find the value of x .



- A) 6 B) 8 C) 10 D) 12

Part 2.4 – Solving 1-Step Inequalities

_____ 27) Which makes the inequality $x^2 \geq x$ false?

- A) $-\frac{1}{4}$ B) 0 C) $\frac{1}{4}$ D) 1

_____ 28) Which has the same solution as $n > 5$?

- A) $n < -5$ B) $n < 5$ C) $5 < n$ D) $-n > -5$

_____ 29) Solve: $-6y < 54$

- A) $y < 9$ B) $y > 9$ C) $y < -9$ D) $y > -9$

_____ 30) What is the least whole-number solution of $k \geq -5$?

- A) -5 B) -4 C) 0 D) 1

_____ 31) Employees must work at least 20 years in a company in order to receive full benefits upon retirement. Which inequality or graph does NOT describe this situation?

- A) $y \geq 20$ B) $y > 20$
C) $20 \leq y$ D)

_____ 32) Solve: $-12 + n > 20$

- A) $n < 32$ B) $n > 32$ C) $n < 8$ D) $n > 8$

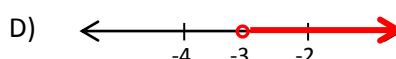
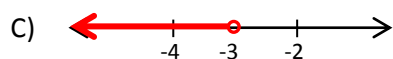
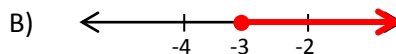
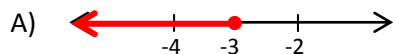
_____ 33) Hector is flying his plane. To avoid a storm, he climbs 5,500 ft without going above his plane's maximum safe altitude of 35,000 ft. The inequality $a + 5,500 \leq 35,000$ represents his original altitude a in feet. Which of the following could have been the original altitude?

- A) 40,500 ft B) 30,000 ft C) 29,750 ft D) 27,750 ft

_____ 34) Describe the solution of inequality $m + 4 \geq 8$.

- A) All real numbers less than or equal to 4
- B) All real numbers less than 4
- C) All real numbers greater than 4
- D) All real numbers greater than or equal to 4

_____ 35) Which graph represents the solution of $x - 4 \leq -7$?



_____ 36) Determine which is a solution of $-4a < -12$.

- A) 3
- B) 0
- C) $\frac{7}{3}$
- D) π

_____ 37) Solve: $-\frac{x}{2} \leq -2$

- A) $x \geq -4$
- B) $x \leq -4$
- C) $x \geq 4$
- D) $x \leq 4$

Part 2.5 – Solving Multi-Step Inequalities

_____ 38) Solve: $-3x + 2 \geq -4$

- A) $x \geq 2$
- B) $x \leq 2$
- C) $x \leq -\frac{2}{3}$
- D) $x \geq -2$

_____ 39) Solve: $2x - 8 > 4x + 2$

- A) $x < -5$
- B) $x > -5$
- C) $x < 5$
- D) $x > 5$

_____ 40) Solve: $-5n + 16 \leq -7n$

- A) $n \leq -8$
- B) $n \geq -8$
- C) $n \leq 8$
- D) $n \geq 8$

- _____ 41) Great gifts pays its supplier \$65 for each box of 12 bells. The owner wants to determine the least amount x he can charge his customers per bell in order to make at least a 50% profit per box. Which inequality should he use?

A) $12x \geq 1.50(65)$ B) $65x \leq 1.50(12)$ C) $0.50(12x) \geq 65$ D) $0.50(12x) \leq 65$

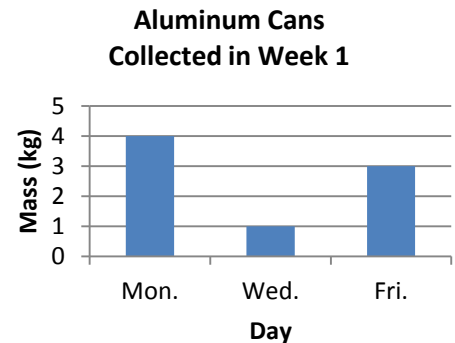
- _____ 42) Solve: $-\frac{n}{5} - 8 > 7$

A) $n > 5$ B) $n < -75$ C) $n > -75$ D) $n < 5$

- _____ 43) The Science Club hopes to collect at least 200 kg of aluminum cans for recycling this semester (21 weeks). The graph at the right shows the first week's results.

Let x represent the average mass of cans required per week for the remainder of the semester. Which inequality would you sue to find x ?

A) $x \geq \frac{200}{21}$ B) $x \geq \frac{(200-8)}{21}$
C) $x \geq \frac{(200-8)}{20}$ D) $x > \left(\frac{200}{20}\right) - 8$



Part 2.6 – Compound Inequalities

- _____ 44) Solve: $-10 < 2x - 8 < 8$

A) $-1 < x < 8$ B) $-1 < x < 6$ C) $-9 < x < 8$ D) $-9 < x < 0$

- _____ 45) Which graph represents the solution of $2x - 1 < 7$ or $2x - 1 \geq 13$?

A) B)
C) D)

- _____ 46) Which value below is a solution of neither $-3x - 7 \geq 8$ nor $-2x - 11 \leq -31$?

A) -6 B) 0 C) 10 D) 16

Part 2.7 – Absolute Value Equations and Inequalities

_____ 47) Which compound inequality has the same meaning as $|x + 4| < 8$?

A) $-12 < x < 4$

B) $-12 > x > 4$

C) $x < -12$ or $x > 4$

D) $x > -12$ or $x < 4$

_____ 48) Which of the following is a solution of $|2 - x| < 4$?

A) -2

B) -1

C) 6

D) 7

_____ 49) Solve: $|x - 7| + 5 = 17$

A) $\{-19, 5\}$

B) $\{-5, 5\}$

C) $\{-5, 12\}$

D) $\{-5, 19\}$

_____ 50) The ideal diameter of a metal rod for a lamp is 1.25 inches with an allowable error at most 0.005 inches. Which rod below would NOT but suitable?

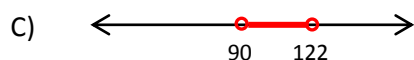
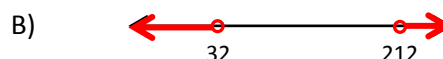
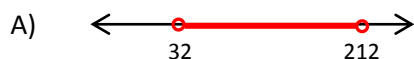
A) a rod with diameter 1.249 inches

B) a rod with diameter 1.251 inches

C) a rod with diameter 1.253 inches

D) a rod with diameter 1.355 inches

_____ 51) Water is in a liquid state if its temperature t , in degrees Fahrenheit, satisfies the inequality $|t - 122| < 90$. Which graph represents the temperature describes by this inequality?



Part 2.8 – Cumulative Review

_____ 52) Which equation is NOT equivalent to the others?

A) $\frac{x}{4} = 3$

B) $4x = 12$

C) $\frac{4x}{4} = 12$

D) $12 = x$

_____ 53) What is the value of the expression $12 - 4 \times 2 + 8 \div 4$?

A) 6

B) 3

C) 18

D) 30

_____ 54) Which expression has a value of 21?

I. $(5 + 4) \times 5 + 15 \div 5$

II. $5 + (4 \times 5 + 15) \div 5$

III. $5 + 4 \times (5 + 15) \div 5$

A) I

B) II

C) III

D) None of them

_____ 55) Evaluate the expression $-3xy^2$ for $x = 3$ and $y = 4$.

A) -36

B) -144

C) -72

D) 72

_____ 56) Which equation is NOT equivalent to the others?

A) $\frac{m+n}{p} = q$

B) $m+n = qp$

C) $n = \frac{qp}{m}$

D) $m = pq - n$

_____ 57) If $2\left(\frac{x}{2} - 1\right) = 4$ and $3(y - 1) = 2 + 2y$, which of the following is true?

A) $x = 3$ and $y = 3$

B) $x = 5$ and $y = 5$

C) $x = 6$ and $y = 1$

D) $x = 6$ and $y = 5$

_____ 58) Half of the money collected at a show was donated to charity. Tickets cost \$100 per pair. The charity received \$3500. How many pairs of tickets were sold?

A) 70

B) 700

C) 350

D) 1400

_____ 59) Which of the following is a solution to the equation $\frac{x}{2} + \frac{2x}{3} = 2$?

A) $\frac{10}{3}$

B) $\frac{12}{7}$

C) $\frac{2}{7}$

D) $\frac{12}{5}$

_____ 60) Solve: $15a = 22 + 4a$

A) 11

B) 2

C) -11

D) -2

_____ 61) If $7x + 3 = 24$, find the value of $5 - 4x$.

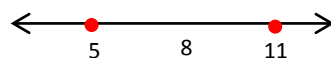
A) -23

B) -7

C) 1

D) 17

_____ 62) Which of the following can be represented by this graph?



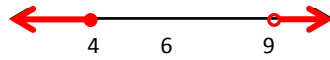
A) $5 < b < 11$

B) $11 \geq b \geq 5$

C) $|8 - b| = 3$

D) $|b - 8| = -3$

_____ 63) Which inequality can be represented by this graph



A) $9 \leq d \leq 4$

B) $d \geq 9$ or $d > 4$

C) $d \leq 4$ or $d > 9$

D) $d < 4$ or $d > 9$